

Architectural Acoustics Principles And Design

Unite the science of sound and the principles of design to enhance any space. Architectural Acoustics Illustrated translates the quantitative and qualitative content of acoustics into the graphic language of architecture. This highly-visual guide includes over 350 illustrations that outline the physics of sound and the best design practices for limiting or mitigating noise in buildings. Includes summary checklist of design guidelines to help prevent mistakes and oversights, and the instructor's website offers video animations demonstrating acoustical concepts. Designed as a "first look" at the interaction of sound and space, the book explains the principles of architectural acoustics and their practical applications, providing a comprehensive guide for just concert halls—it may determine building placement, division of interior space, exterior construction, and even siting. When addressed early in the design process, the resulting space can be free of unwanted sound and promote good hearing; if left unaddressed, the problems with the space can lead to lawsuits and costly post-construction remediation. Architectural Acoustics Illustrated is a comprehensive, practical guide in an easy-to-read format. Advance, by enabling readers to: Understand the physical science underlying the behavior of sound. Consider the interactions of sound and space in the initial design approach. Mitigate building sounds such as those produced by HVAC and plumbing with early design planning. Design spaces for listening, and incorporate acoustics best practices into every plan. The highly visual format of the book helps readers grasp complex concepts quickly, and through discussion of each concept's real-world application ties the science directly into the design process. All design professionals need to have a fundamental understanding of acoustics, and Architectural Acoustics Illustrated is a comprehensive, practical guide in an easy-to-read format. A vibrant history of acoustical technology and aural culture in early-twentieth-century America. In this history of aural culture in early-twentieth-century America, Emily Thompson charts dramatic transformations in what people heard and how they listened. What they heard was a new kind of sound that was the product of modern technology. They listened as new technologies that produced this sound, as well as the culture that enthusiastically consumed it. Thompson recovers a lost dimension of the Machine Age and deepens our understanding of the experience of change that characterized the era. Reverberation equations, sound meters, microphones, and acoustical tiles were deployed in places as varied as Boston's Symphony Hall and Hollywood. The control provided by these technologies, however, was applied in ways that denied the particularity of place, and the diverse spaces of modern America began to sound alike as a universal new sound predominated. Although this sound—clear, direct, efficient, and nonreverberant—had little to say about the physical spaces in which it was produced, it Thompson constructs a compelling new account of the experience of modernity in America.

Victoria Newhouse, noted author and architectural historian, addresses the aesthetics and acoustics in concert halls and opera houses of the past, present, and future in this stunning companion to the highly regarded Towards a New Museum. Site and Sound explores the daunting, perennial question: Does the music serve the space, or the other way around? Heavy photographs, detailed drawings—this volume is an informed and enjoyable presentation of a building type that is at the heart of cities small and large. Newhouse starts with a survey of venues from ancient Greek and Roman times and progresses to contemporary works around the world. She singles out Lincoln Center in particular for its long history and its transit to the present: one focuses on recent work in the West, including the National Opera House of Norway in Oslo by Snøhetta (2008), the Casa da Música in Porto, Portugal, by Rem Koolhaas (2005), and many more; the second examines the boom in concert halls in China. A final chapter looks at projects that are currently planned and the future of an architecture for music.

This textbook treats the broad range of modern acoustics from the basics of wave propagation in solids and fluids to applications such as noise control and cancellation, underwater acoustics, music and music synthesis, sonoluminescence, and medical diagnostics with ultrasound. The new edition is up-to-date and forward-looking in approach. Additional coverage of problems has been added throughout.

Rock and Pop Venues

Handbook of Sound Studio Construction: Rooms for Recording and Listening

Plumbing, Electricity, Acoustics

Acoustic Design

Sustainable Design Methods for Architecture

Build first-class recording studios and listening spaces. Design and build your own audiophile-grade recording and playback environments using proven, cost-effective plans and techniques. Handbook of Sound Studio Construction: Rooms for Recording and Listening explains practical acoustical properties and describes how to engineer acoustically sensitive spaces, including music recording studios, control rooms, voice studios, home project studios, A/V suites, media rooms, and surround-sound home theaters. Learn how to choose room dimensions, select building materials, construct your own custom treatments, maximize isolation, and generate and analyze response curves. This do-it-yourself guide incorporates decades of roomdesign experience and provides you with the practical knowledge to design and build your own acoustical spaces or improve existing spaces. Coverage includes: An introduction to room acoustics and acoustical design. Reflecting, absorbing, and diffusing materials. Room geometry, modes, and treatment. Acoustic isolation, site selection, and HVAC design. Wall, floor, and ceiling construction. Window and door design considerations. Reverberation time, early reflections, and psychoacoustics. Objective and subjective room evaluation. Plans and specifications for 10 recording and listening rooms.

Popular music plays a substantial role in most people's life. The demand and financial revenue of Rock and Pop concerts is large and still increasing with the decreased revenue on recorded music. Based on the first ever scientific investigations on recommendable acoustics for amplified music conducted by the author, this book sets forward precise guidelines for acoustical engineers to optimize the acoustics in existing or future halls for amplified music. Gives precise guidelines on how to design the acoustics in venues that present amplified music. Debates essential construction details, including placement of sound system and use of possible building materials, in the architectural design of new venues or the renovation of old ones. Portrays 75 well-known European Rock & Pop venues, their architecture and acoustic properties. 20 venues were rated for their acoustics by music professionals leading to an easy-to-use assessment methodology. "Acoustics are important within pop and rock venues to ensure a great experience for audiences and performers. This book fills an important gap of knowledge on the acoustics of venues. It will be of value to sound engineers as well as building owners and operators and building design professionals". Rob Harris, Arup Acoustics "With this book, many future amplified music concerts will sound better, for the joy of audiences and musicians alike. This enormous work demonstrates a rare degree of passion and insight, from the hand of the key researcher in the field". Dr. Per V. Br el

The new edition of the popular introduction to architectural lighting design, covering all stages of the lighting design process. Designing with Light: The Art, Science, and Practice of Architectural Lighting Design, Second Edition, provides students and professionals alike with comprehensive understanding of the use of lighting to define and enhance a space. This accessible, highly practical textbook covers topics such as the art and science of color, color rendering and appearance, lighting control systems, building codes and standards, and sustainability and energy conservation.

Throughout the text, accomplished lighting designer and instructor Jason Livingston offers expert insights on the use of color, the interaction between light and materials, the relation between light, vision, and psychology, and more. Fully revised and updated throughout, the second edition features new design thinking, common lighting techniques, and lighting economics. Expanded sections on aesthetics, controlling LEDs, light, and health, designing with light, and color mixing luminaires are supported by new case studies, examples, and exercises. Featuring hundreds of high-quality color images and illustrations, Designing with Light: Provides systematic guidance on all aspects of the lighting design process. Thoroughly covers color and light, including color perception, color rendering, and designing with colored light. Explains the theory behind the practice of architectural lighting design. Contains information on cost estimating, life cycle analysis, voluntary energy programs, and professional lighting design credentials. Includes an instructor resource site with PowerPoint presentations, test questions, and suggested assignments for each chapter, and also a student site with flashcards, self-evaluation tests, and helpful calculators. Designing with Light: The Art, Science, and Practice of Architectural Lighting Design, Second Edition is perfect for architecture, interior design, and electrical engineering programs that include courses on lighting design, as well as professionals looking for a thorough and up-to-date desk reference.

Acoustics as a branch of physics involves heavy mathematics, and the practice of architectural acoustics involves knowledge of a broad range of subjects. For these reasons, many people believe that good acoustics are almost impossible to obtain and exist only in concert halls. With a solid understanding of the basics, however, rooms with good acoustics are not as hard to design and build as people might think. This work describes acoustics and the factors to be considered in constructing a room or building with good sound quality. Among the topics covered are intonation, tuning and temperaments of classical music, environmental noise, noise and vibration control, sound measurement, sound systems, acoustic models, and acoustical design for various settings and purposes, including acoustics for chamber music, synagogues, churches, and classrooms. The work looks at places like Clemens Theatre, Congress Hall, Binns Rehearsal Room, and Philharmonic Hall, to name just a few, as models of small and large buildings with excellent acoustics. Many diagrams and other illustrations enhance the text.

Architectural Acoustics Concert Halls and Opera Houses Acoustics in Performance and Worship Form, Space, and Order Designing with Light This book is an authoritative but uniquely accessible and highly illustrated guide to good acoustic design practice for architects, interior designers and acoustic professionals. It provides a user-friendly introduction to architectural acoustics and acoustics technology where the market is crowded with dense and technical texts. It will go through each typology in turn explaining the key acoustic concepts with highly illustrated and international case studies that demonstrate cutting-edge practice and technology, innovative design techniques and common challenges and solutions. Electroacoustic devices such as microphones and loudspeakers are used everywhere from cars and mobile phones to homes, places of worship, and sports arenas. They are a key part of the modern communication society, helping to transmit information to our ears. A contemporary introduction to the subject, Electroacoustics explains the scientific and engineering principles behind the design of these sound transducers. It also examines the compromises that are necessary when designing transducers for use in the real world. Learn about Ultrasonic Transducers, Loudspeaker Enclosure Design, and More This accessible textbook is based on the author's extensive experience teaching electroacoustics to advanced graduate and graduate students. He uses the concept of electrical circuit analogies to help readers quickly grasp the fundamentals of acoustical and mechanical systems. The book covers traditional electrodynamic audio and ultrasonic transducers and includes up-to-date material on arrays, planar transducers, Loudspeaker enclosure design, and more. To meet the needs of a broad range of readers, the book also includes background material on room acoustics, electrical circuits, and electrical filters. Electroacoustic theory is explained in an easy-to-read style without resorting to matrix theory. Throughout, a wealth of illustrations and exercises make ideas more concrete. Got a Solid Foundation in Electroacoustic Engineering Principles The book emphasizes multidisciplinary engineering principles, preparing students for the broad range of applications they may encounter in their research as well as later in their careers. The modern treatment of transducers also makes this a valuable reference for transducer designers, acoustical consultants, hobbyists, and anyone involved in electroacoustic design.

This corrected version of the landmark 1981 textbook introduces the physical principles and theoretical basis of acoustics with deep mathematical rigor, concentrating on concepts and points of view that have proven useful in applications such as noise control, underwater sound, architectural acoustics, audio engineering, nondestructive testing, remote sensing, and medical ultrasonics. Since its publication, this text has been used as part of numerous acoustics-related courses across the world, and continues to be used widely today. During its writing, the book was fine-tuned according to insights gleaned from a broad range of classroom settings. Its careful design supports students in their pursuit of a firm foundation while allowing flexibility in course structure. The book can easily be used in single-term or full-year graduate courses and includes problems and answers. This rigorous and essential text is a must-have for any practicing or aspiring acoustician.

Architects are used to designing visually. In order to expand their basic design tools, this book explores the interactions between sound, space, hearing, and architecture. To this end, the author uses contemporary and historic buildings and projects, but also fictional, philosophical, and theoretical approaches – the idea is not only to define sound as a source, but also as an instrument of architectural space. By introducing a metatheory of "critical hearing", designers are able to acoustically test their projects and contribute to their design with auditory input, already at the design stage.

An Introduction to Its Physical Principles and Applications

Electroacoustics

Arch. Utilities 3: Lighting & Acoustics

Music, Acoustics, and Architecture

Publisher's Note: Products purchased from Third Party sellers are not guaranteed by the publisher for quality, authenticity, or access to any online entitlements included with the product. More people are spending more time at home making more noise—yet they want quiet environments. This is the only book available that tells designers, planners, architects, and builders how to give homeowners and apartment-dwellers the quiet they crave. Simple enough to be used by the average do-it-yourselfer (it avoids complex mathematics), yet so complete it will satisfy the requirements of knowledgeable building professionals, this authoritative guide gives you one-stop answers on designing, specifying, testing, and retrofitting residences to meet the new environmental standards and satisfy our need for peace and quiet.

Worship Space Acoustics is a unique guide to the design, construction, and use of religious facilities for optimum acoustics. The book is divided into two parts: Part 1 discusses methods and techniques of room optimization – how the acoustics of large and small spaces are designed, implemented, and adjusted, and how acoustical privacy is attained; noise and its control as well as sound reinforcement and numerical and physical modeling techniques. Part 2 provides the architect, student, and lay-person a review of the characteristics of the religious services pertinent to various beliefs and how these are provided for in the acoustic design of spaces in synagogues, churches, and mosques. Key Features • Covers the design, construction, and use of religious facilities for optimum acoustics • Presents the historical background to existing practice, problems, and solutions, to deepen understanding for those involved in design, construction and use • Illustrates both the similarities and differences between facilities for different religious groups • Offers a unique reference for those who teach and study, both in architecture and in religious education

Avoid Costly Mistakes for Specialists and Non-Specialists Alike Bad acoustics in buildings is a nuisance that is not dealt with easily. The problem applies just as much to open-plan offices and restaurants and to production facilities and transportation stations as it does to performance halls, not to mention homes. It does not merely affect oral communication or enjoyment of music but has quite profound consequences on well-being. Gives Guidance on What to Expect from Design Teams and Contractors Building Acoustics is devoted to practical building and room acoustics, illustrated by numerous examples. It introduces the basics for the different specialists in a design team and for the client and sets out the issues for shared consideration. It guides them in the drawing up of sensible acoustic specifications and provides an overview of the range of potential problems. It also shows what to consider before the construction stage. It empowers its readers to express their needs to a specialist consultant and to avoid the worst pitfalls. Covers interactions between acoustics and other disciplines Shows through numerous real-life examples the route to understanding and solving the problem Illustrates various points of views through real projects

Architectural Acoustics Principles and Design Entering Architectural Practice Acoustics and Sound Insulation Historical Acoustics Principles and Practice NCARB Edition Acoustic and Architectural Design Adopting a multi-disciplinary approach to the practice of achieving a more acceptable acoustic environment, this book draws on the same basic principles to cover both the outdoors and indoor space. It starts with the fundamentals of sound waves and hearing and goes on to the measurement of noise and vibration, room acoustics, sound absorption, airb

The acoustic quality of a concert hall has frequently posed a mysterious puzzle, namely, what physical aspects of the sound field can produce superior sound for the listener. The author has been probing for more than decade into the subjective qualities preferred for musical and speech sounds. The result of his extensive investigations - the discovery that four and only four independent parameters contribute effectively to good acoustics - is summarized in the present book. The capability of calculating acoustical quality at any seat in a proposed concert hall is a unique and quite useful aspect of Ando's design method. Alternative architectural schemes can be compared based on the number of seats which exceeds a previously accepted minimum standard of acoustical quality.

It gives a complete overview of the practical applications of acoustical science to construction, from basic physics of sound to specific challenges and solutions.

This illustrated guide to 100 of the world's most important concert halls and opera houses examines their architecture and engineering and discusses their acoustical quality as judged by conductors and music critics. The descriptions and photographs will serve as a valuable guide for today's peripatetic performers and music lovers. With technical discussions relegated to appendices, the book can be read with pleasure by anyone interested in musical performance. The photographs (specially commissioned for this book) and architectural drawings (all to the same scale) together with modern acoustical data on each of the halls provide a rich and unmatched resource on the design of halls for presenting musical performances. Together with the technical appendices, the data and drawings will serve as an invaluable reference for architects and engineers involved in the design of spaces for the performance of music.

Deaf Architects & Blind Acousticians?

Architectural Acoustics and the Culture of Listening in America, 1900-1933

Acoustics

Principles, Planning, Examples

Building Acoustics

Modern concert halls and opera houses are now very specialized buildings with special acoustical characteristics. With new contemporary case-studies, this updated book explores these characteristics as an important resource for architects, engineers and auditorium technicians. Supported by over 40 detailed case studies and architectural drawings of 75 auditoria at a scale of 1:500, the survey of each auditorium type is completed with a discussion of current best practice to achieve optimum acoustics.

Architects and Press Library of Design and Building Acoustic Design focuses on the techniques and principles employed in acoustic design, as well as room acoustics, hearing, speech, sound insulation, and noise control and design. The book first elaborates on the perception of sound, properties of sound, and sound in the built form. Concerns cover sound absorption, room acoustics, sound insulation, physical data, units and measurement, sound at a point, and hearing and speech. The manuscript then takes a look at noise control and design. Topics include prediction and prescription, control at source, control in the sound path, building types, and building elements. The text is a valuable source of information for researchers interested in acoustic design.

Acoustics and protection against noise do not perhaps number among the primary parameters that normally influence the design of a building. Nevertheless, at the very latest when the lecturer in the seminar room cannot be heard, when the noise level in an open-plan office reaches unbearable levels, or when a neighbor's noise deprives you of sleep, it becomes clear just how essential acoustic can be to everyday well-being; it is not just concert halls or the amphitheatres of antiquity that call for acoustic quality; rather, every building, indeed every room, has an acoustic dimension that changes according to the nature of its particular requirements. This practice-oriented volume provides expert planners and architects but also interested developers with practical knowledge on the subject of acoustics in high-rise architecture, beginning with standards on methods of planning and prognosis and moving on to the areas of acoustics of rooms and architecture and noise protection in urban planning. Typologically organized chapters comment on proper approaches to the subject with examples of different types of building such as residential and office buildings, schools, kindergartens, lecture halls, event spaces, and so on, because appropriate acoustic conditions make an essential contribution to the success of a project.

Written by two educators and a practicing acoustical consultant, this reader-friendly book/reference covers all the important issues of architectural acoustics in a single volume –AND features a dual-level presentation that meets the needs of both those seeking depth and rigor, and those requiring a broad, practical perspective. Synthesizing acoustical theory with its practical applications, it provides exhaustivenarrative coverage of the subject (including an extensive mathematical appendix) and extensivehigh-quality stand-alone illustrations – for those who need to grasp concepts quickly without wading through long descriptions of complex acoustical phenomena. Explainscomplex acoustical phenomena and their practical details with relative ease. Providesover 500 stand-alone illustrations – that, together with a cursory reading of the text, enable readers to grasp concepts quickly –without wading through long descriptions of complex acoustical phenomena. Contains comprehensive list of important formulas in architectural acoustics.

Acoustic Concepts and Parameters for Architectural Design

Concert Hall Acoustics

Architecture

Architectures of Sound

Auditorium Acoustics and Architectural Design

Architects need a working knowledge of acoustics in order to distribute sound and control unwanted noise within a building. Sound control is important not only in places like concert halls, but also in offices where privacy is essential. Detailing over 100 sound absorbing materials and finishes with case studies of innovative architectural and design applications. Sound Materials is a definitive resource for architects, designers, acousticians, engineers, students and creative professionals - the first publication of its kind to catalogue over 100 sound absorbing materials, detailing inspiring real-world applications. Project profiles include work from leading architects and designers such as OMA, Gehry Partners, Foster + Partners, Ronan and Erwan Bouroullec, and Barber & Osgerby. These projects showcase sound absorbing materials in a variety of interior design and architectural contexts and underscore some of the common acoustical and material challenges presented by specific applications, such as healthcare, education, performing arts, office, retail and industrial environments. Fundamental technical concepts are clearly presented to offer readers with an understanding of how materials absorb sound and how these materials are commonly used to reduce noise and reverberation, inform our sense of space, and improve communication in everyday environments. This book not only surveys an extensive range of materials past, present and emerging, but also highlights many exciting opportunities for future innovation and collaboration at the intersections of acoustical engineering, materials science, design and architecture.

The leading guide to acoustics for architects, engineers, and interior designers A widely recognized, comprehensive reference to acoustic principles for all concerned with the built environment, Architectural Acoustics, Second Edition provides design professionals with up-to-date information on basic concepts, acoustical materials, and technologies for controlling wanted or unwanted sound within and around buildings. Written by a team of internationally recognized experts and experienced consultants, this Second Edition covers fundamental acoustic principles, design criteria, acoustical materials, control strategies, and methods for a wide variety of building types, including educational, healthcare, recreational, residential, commercial, industrial, and transportation facilities. Particular attention is given to places for listening and performance such as theaters, churches, concert and recital halls, outdoor arenas, classrooms, multiuse auditoria, libraries, music practice and rehearsal rooms, recording and broadcast studios, sports venues, home theaters, and other spaces that people meet to communicate and enjoy performance. Updated throughout, this edition features: New information on acoustical standards and guidelines for sustainable building design Additional, richly detailed case studies demonstrating real-world applications, including the acclaimed Walt Disney Concert Hall and many other building types Nearly two hundred photos and illustrations that further elucidate specific principles, applications, and techniques New developments in sound reinforcement and audio visual systems and their integration in room design Progress in research and future directions in acoustical modeling With fundamental conceptual understanding of basic acoustical principles provided by Architectural Acoustics, Second Edition, building designers can confidently create aesthetically and aurally pleasing spaces, while avoiding problems that could be very costly, if not impossible, to solve later.

Discover sustainable methods for designing crucial building systems for architects. This indispensable companion to Norbert Lechner's landmark volume Heating, Cooling, Lighting: Sustainable Design Methods for Architects, Third Edition completes the author's mission to cover all topics in the field of sustainable environmental control. It provides knowledge appropriate for the level of complexity needed at the schematic design stage and presents the most up-to-date information available in a concise, logical, accessible manner and arrangement. Although sustainability deals with many issues, those concerning energy and efficiency are the most critical, making an additional goal of this book one of providing architects with the skills and knowledge needed to create buildings that use electricity and water efficiently. Guidelines and rules-of-thumb are provided to help designers make their buildings use less energy, less water, and less of everything else to achieve their primary objectives. In addition, this book: Addresses ways to reduce electricity usage through more efficient lighting systems and appliances and by incorporating automatic switches and control systems that turn off systems not in use. Covers the design of well-planned effluent treatment systems that protect against potential health hazards while also becoming a valuable source of reclaimed water and fertilizer. r Provides coverage of fire protection and conveyance systems, including very efficient types of elevators and escalators and designs that encourage the use of stairs or ramps. Complete with case studies that illustrate how these systems are incorporated into large-project plans, Plumbing, Electricity, Acoustics is an indispensable resource for any architect involved in a sustainable design project.

Site and Sound

Environmental and Architectural Acoustics

Principles and Design

The Architecture and Acoustics of New Opera Houses and Concert Halls

Architectural Acoustics Illustrated

The application of good acoustic design can seem daunting to designers when trying to understand the often-complex physics of sound control. The ever-increasing number of standards and performance criteria that can be requested on new developments further complicates acoustics for architects. Architectural Acoustics, part of the Pocket/Architecture series, provides the fundamental theory and understanding of acoustics and applications of effective detailing for specific building types and conditions in an accessible and clear technical guide. The book provides: a compact and understandable introduction to the fundamentals of building and architectural acoustics definitions of suitable acoustic performance criteria for a wide range of common buildings and room types guidance on specification and detailing of the most suitable construction types in North America and the UK. This book is both, a handy rule of thumb on acoustics for anyone involved in the design or construction of buildings, as well as an essential addition to any architect's reference library.

Unite the science of sound and the principles of design to enhance any space. Architectural Acoustics Illustrated translates the quantitative and qualitative content of acoustics into the graphic language of architecture. This highly-visual guide includes over 350 illustrations that outline the physics of sound and the best design practices for limiting or mitigating noise in buildings by using the latest in materials and techniques. Each chapter includes a summary checklist of design guidelines to help prevent mistakes and oversights, and the instructor's website offers video animations demonstrating acoustical concepts. Designed as a "first look" at the interaction of sound and space, the book explains the principles of architectural acoustics and their practical applications, providing a comprehensive guide for designing with acoustics in mind. Architectural Acoustics Illustrated is a comprehensive, practical guide in an easy-to-read format. Advance, by enabling readers to: Understand the physical science underlying the behavior of sound. Consider the interactions of sound and space in the initial design approach. Mitigate building sounds such as those produced by HVAC and plumbing with early design planning. Design spaces for listening, and incorporate acoustics best practices into every plan. The highly visual format of the book helps readers grasp complex concepts quickly, and through discussion of each concept's real-world application ties the science directly into the design process. All design professionals need to have a fundamental understanding of acoustics, and Architectural Acoustics Illustrated is a comprehensive, practical guide in an easy-to-read format.

Entering Architectural Practice is a practical and honest guide for architecture students, entering the world of architectural practice. There is often a disconnection between what you are taught in architecture school and the actual practice of architecture in the workplace. As both a practicing architect and architecture school tutor, the author has first-hand experience of this disconnection and so helps students bridge this divide between academia and practice. Focused on providing industry insight, dispelling myths, and above all providing a combination of reality and hope to students of architecture entering the workplace, the book is beautifully and richly illustrated, providing a compelling visual story alongside the invaluable information it imparts. Serious but enjoyable, thoroughly researched but highly approachable, this book is simply essential reading for every individual about to embark on a career in practice.

For far too long, acoustical design has been popularly considered at worst a gamble, and at best a black art. If this position has ever been defensible, it certainly is not so today. In his 1932 book on the subject, Dr. Vern O. Knudsen, Professor of Physics and subsequently chancellor of UCLA, wrote: The idea, still shared by some architects, builders, and ... authorities, that the acoustical outcome of a ... building cannot be determined until the building is completely in an untenable one and can no longer be used as an excuse for poor acoustics. The acoustical outcome of a ... building is a problem in good designing and good engineering, and if the fundamental principles of architectural acoustics are written in the design of the building there need be no uncertainty as to the acoustical outcome of that building - the acoustics will be good. If these principles are not incorporated, or if they are violated, there likewise need be no uncertainty - the acoustics will be bad, bad to the degree that the principles have been ignored or violated. (Knudsen, 1932) Yet eighty-one years later, we still find that buildings with good acoustics are the exception rather than the rule. In seeking a reason why this is so, one is tempted to point the finger at architects, who have little or no training in acoustics, and may overestimate the extent of acoustical knowledge they do possess. However, as in most economic markets, the clients of architects get what they demand. If a client insists on good acoustics from the inception of a project, most architects will engage the services of a competent acoustical consultant. And if the client remembers that most things worth having come with a cost, design features recommended by the acoustical consultant will be more likely to survive cost-cutting and other compromises of the building process. Finally, if communication of the consultant's recommendations to the building contractor is given a high priority, those recommendations stand a good chance of being incorporated into the building - and good acoustics will be the result. The purpose of this book is to present those responsible for providing good acoustics in performance and worship spaces an understanding of the variables and choices entailed in proper acoustic design for worship. The readership is expected to include architects, pastors, ministers of music, technical teams, and musicians. Practicing acoustical consultants may find the book a useful reference as well. The author hopes that the readers will find the level of presentation comfortable and straightforward without being simplistic

Worship Space Acoustics

Soundscape and the Built Environment

The Science and Applications of Acoustics

Relationships between People and Sound over Time

A guide to integrated thinking

Building or architectural acoustics is taken in this book to cover all aspects of sound and vibration in buildings. The book covers room acoustics but the main emphasis is on sound insulation and sound absorption and the basic aspects of noise and vibration problems connected to service equipment and external sources. Measuring techniques connected

Architectural Acoustics, Second Edition presents a thorough technical overview of the discipline, from basic concepts to specific design advice. Beginning with a brief history, it reviews the fundamentals of acoustics, human perception and reaction to sound, acoustic noise measurements, noise metrics, and environmental noise characterization. In-depth treatment is given to the theoretical principles and practical applications of wave acoustics, sound transmission, vibration and vibration isolation, and noise transmission in floors and mechanical systems. Chapters on specific design problems demonstrate how to apply the theory, including treatment of multifamily dwellings, office buildings, rooms for speech, rooms for music, multipurpose rooms, auditoriums, sanctuaries, studios, listening rooms, and the design of sound reinforcement systems. Detailed figures illustrate the practical applications of acoustic principles, showing how to implement design ideas in actual structures. This compendium of theoretical and practical design information brings the relevant concepts, equations, techniques, and specific design problems together in one place, including both fundamentals and more advanced material. Practicing engineers will find it an invaluable reference for their daily work, while advanced students will appreciate its rigorous treatment of the basic building blocks of acoustical theory. Considered the most complete resource in the field – includes basic fundamental relations, derived from first principles, and examples needed to solve real engineering problems. Provides a well-organized text for students first approaching the subject as well as a reliable reference for experienced practitioners looking to refresh their technical knowledge base. New content for developing professionals includes case studies and coverage of specific focus areas such as audio visual design, theaters, and concert halls.

Explores the Science and Practice Of Acoustics For Arts Centers Employing the experiences of a world-renowned acoustician celebrated for the successful design of multi-use performing arts centers. Acoustics of Multi-Use Performing Arts Centers examines the complexities of this venue and discusses the challenges and solutions in the design of the concert hall.

Soundscape Basics and Practical Implications Soundscape research represents a paradigm shift, as it involves human and social sciences and physical measurements to account for the diversity of soundscapes across countries and cultures. Moreover, it treats environmental sounds as a resource rather than a waste. Soundscape and the Built Environment is the first book to systematically discuss soundscape in the built environment. It begins with a presentation of theory and basic background, answering questions such as: what is soundscape, how is it important, and how does it affect people in terms of their health and perception on the acoustic environment. The book then sets out tools for implementing a soundscape approach, with measurement techniques, mapping, and good soundscape practices. It also delivers a series of examples of the application of the soundscape approach in planning, design, and assessment. Discusses soundscape and environmental noise Explores cultural variations and the way they influence soundscape Introduces binaural measurement technology and psychoacoustics Examines the physical, psychological, and physiological restorative mechanism of high-quality acoustic environments Presents soundscape mapping based on human perception of sound sources Includes real-world examples and case studies highlighting the key issues in soundscape intervention Soundscape and the Built Environment is written by a group of leading international figures and derives from a four-year EU COST project on Soundscapes of European Cities and Landscapes. It presents a consensus on the current state of the art and is not merely a collection of different views. It is written for acoustic consultants, urban planners, designers and policy makers, as well as for graduate students and researchers.

Noise Control Manual for Residential Buildings

A Compendium of Sound Absorbing Materials for Architecture and Design

The Art, Science, and Practice of Architectural Lighting Design

Sound Materials

The Soundscape of Modernity

This book is a collection of contributions to the Special Issue iHistorical Acoustics: Relationships between People and Sound over Time]. The research presented here aims to explore the origins of acoustics and examine the relationships that have evolved over the centuries between human and auditory phenomena. Sounds have indeed accompanied human civilizations since the beginning of time, helping them to make sense of the world and to shape their cultures. Several key topics emerged, such as the acoustics of historical worship buildings, the acoustics of sites of archaeological interest, the acoustics of historical opera houses, and the topic of soundscapes as cultural intangible heritage. The book, as a whole, reflects the vibrant research activity around the iAcoustics of the Past], which will hopefully be serve as a foundation for inspiring the future path of this discipline.

Comprehensive, up-to-date coverage of principles, materials, and technologies Architectural Acoustics provides the vital information that architects, engineers, and all concerned with the built environment need to control and direct wanted or unwanted sounds within and around buildings. A team of internationally recognized experts presents the very latest information on acoustical materials, technologies, design criteria, and methods for a wide variety of applications, including airports and other transportation facilities; theaters, churches, and concert halls; classrooms, lecture halls, and libraries; music practice rooms and recording studios; sports venues; and all types of residential, commercial, and industrial buildings. This comprehensive reference is one of the few books of its kind to include richly detailed case studies that demonstrate real-world applications of acoustic principles, materials, and methods. Nearly two hundred photos and illustrations further elucidate specific principles, applications, and techniques. Topics covered include: • Basic principles of architectural acoustics • Acoustical materials and methods • Building noise control applications

A superb visual reference to the principles of architecture. Now including interactive CD-ROM! For more than thirty years, the beautifully illustrated Architecture: Form, Space, and Order has been the classic introduction to the basic vocabulary of architectural design. The updated Third Edition features expanded sections on circulation, light, views, and site context, along with new considerations of environmental factors, building codes, and contemporary examples of form, space, and order. This classic visual reference helps both students and practicing architects understand the basic vocabulary of architectural design by examining how form and space are ordered in the built environment. • Using his trademark meticulous drawing, Professor Ching shows the relationship between fundamental elements of architecture through the ages and across cultural boundaries. By looking at these seminal ideas, Architecture: Form, Space, and Order encourages the reader to look critically at the built environment and promotes a more evocative understanding of architecture. In addition to updates to content and many of the illustrations, this new edition includes a companion CD-ROM that brings the book's architectural concepts to life through three-dimensional models and animations created by Peter G. King.

Acoustics of Multi-Use Performing Arts Centers

Principles and Practice

A Guide to the Principles of Sound Design